1st ESNEE EXCIPIENT MONOGRAPH: INFORMATION NEEDED TO FORMULATE, PREPARE AND PRESCRIBE MEDICINES FOR NEONATES CONTAINING PROPYLENE GLYCOL AS AN EXCIPIENT

BACKGROUND:
Neonates are particularly vulnerable to adverse effects of medicines and excipients because of organ immaturity. ESNEE (European Study of Neonatal Exposure to Excipients) is a European research consortium granted in 2011 by ERA-NET PRIMED-CHILD.

AIMS:
Establish a monograph to inform on Propylene glycol use in neonate.

MATERIALS & METHODS:

RESULTS:
DIFFERENT KINDS OF DATA:
- GENERAL INFORMATION
- TOXICOLOGICAL SAFETY
- MONITORING

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TOXICITY:
Some case reports among Adults, infants & newborns.

- Central Nervous System
  - Depression
  - Seizure
- Coma
- Kidney
- Retinal lesions
- Blood in urine
- Liver
- Hepatic encephalopathy
- Metabolic
  - Acidosis
  - Hyperosmolality
  - Increased osmolar gap

In animal studies:
- Prophylactic feeding an increase of PG-concentration from the oesophagus (62±1% benzoic acid (≥ 10)).

Acute:
Lack of data

Long term neurological effect?

Chronic:
Intermediate and chronic exposure to PG may lead to changes in hematological parameters and hemolysis of red blood cells (Can, dog).

TOXICOKINETICS:

Absorption:
- Oral: Cmax 1 h
- Intranasal: 100% absorption

Distribution:
- Volume of distribution: 1.02 L/kg
- Clearance: 8.64 - 23.4 L/h
- Half-life: 2.4 to 5.2 h
- Accumulation?

Elimination:
- Kidney: unchanged
- Liver: unclear but different from adult

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CONCLUSION:
This is the first monograph of propylene glycol offering a complete overview validated by a panel of European experts. This document should help the Pharmaceutical industry and hospital pharmacists when formulating/preparing medicines and neonatologists when prescribing such PG containing medicines. It also provides a clear image of which information is lacking and warrants further experimental investigation.